Valuation of University Startups

Panel Discussion with:

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Valuing University Startup Companies

- Three accepted valuation methods-
    - Market Approach. Look at similar transactions in open markets.
    - Cost Approach. Determine the value by calculating the amount of money required to recreate the property.
    - Income Approach. How much income can this company generate over the life of the company?

        In theory, this is far and away the best method.

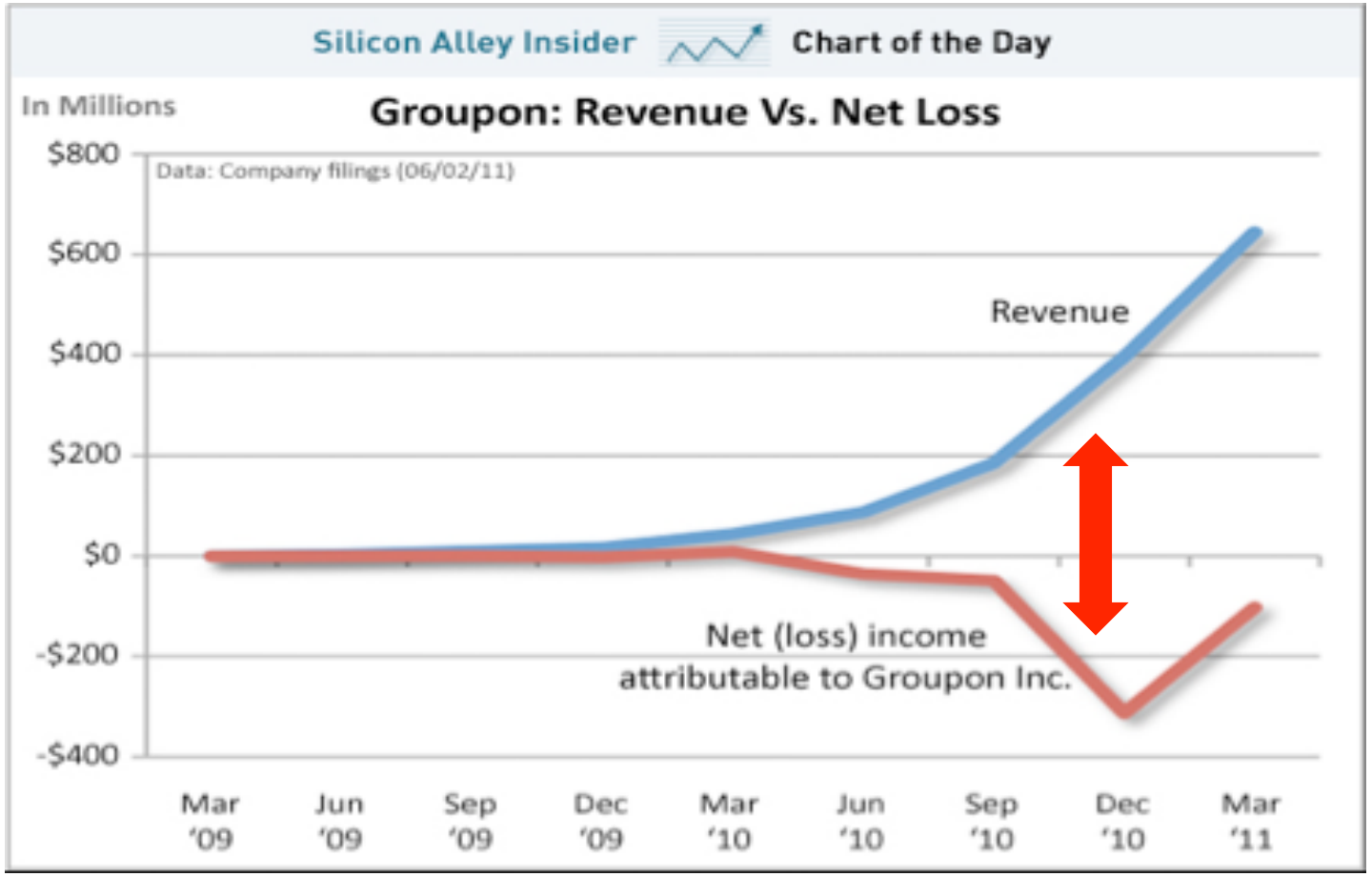
Valuing Startup Companies- Pre-Revenue

- It’s Hard!

Valuing Startup Companies- The Balance Sheet

- Balance Sheet
  - Assets-
    - License or option to license university technology (usually untested technology)
    - Smart people with a Story (probably the source of any real value)
    - Friends and family
    - Some local or university entrepreneurial ecosystem
  - Liabilities-
    - Little or no cash or access to capital
    - Little or no management experience
    - Limited understanding of the market
    - Regulatory hurdles
    - Lots of mouths to feed
    - Angry and aggressive competitors

Valuing Startup Companies- Beware of Hockey Sticks



Spending a $1 for
Every $1 of Revenue-
Not a recipe for success

Valuing Startup Companies- Why it is important to get the value correct

- If the seed-stage valuation is too high…
  - The financial contribution is undervalued and too little stock received by investors
  - Easier for smart money to walk away
  - Seed rounds timing can be significantly extended and a higher likelihood of a down round later
  - Problems if the company misses an important milestone
- If the seed-stage valuation is too low…
  - Entrepreneurs are less motivated
  - Increased dilution after multiple rounds of funding

Valuing Pre-Revenue Startup Companies- 3 handy methods

- Venture Capital Method
- Scorecard Method
- Berkus Method

Valuing Startup Companies- Venture Capital Method

- Post-money Valuation = Terminal Value ÷ Anticipated ROI

- Where- Terminal Value is anticipated selling price of the company in 5 to 8 years
- Anticipated ROI 10 to 30X

- Example- company needs $1 million cash and expected to sell for $50 million. Investors demand 20 % ROI

$50,000,000 ÷ 20 = $2,500,000. Less $1 million investment = $1.5 million Pre-money valuation.

Valuing Startup Companies- Scorecard Method

Criteria	Weighting	Comparison	Adjusted Weighting
Entrepreneur, Team, Board	**30%**		
Size of Opportunity	**25%**		
Product/Technology	**15%**		
Competitive Environment	**10%**		
Sales/Marketing	**10%**		
Need for More Financing	**5%**		
Other	**5%**		

Valuation of Startup Companies- Berkus Method

If Exists:	*Add to Company Value up to:*
Sound Idea *(basic value)*	$1/2 million
Prototype *(reducing technology risk)*	$1/2 million
Quality Management Team *(reducing execution risk)*	$1/2 million
Strategic relationships *(reducing market risk)*	$1/2 million
Product Rollout or Sales *(reducing production risk)*	$1/2 million

For a “perfect” idea, possibility of $2 to $2.5 million pre-money enterprise valuation

Valuation of Early Stage Startups – Art or Science?

Dr. Helena S. Wisniewski
Vice Provost for Research & Graduate Studies
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Art or Science?

- **I have heard it said that:** *Business valuation is more art than science.* If this is true, then startup valuation is in domain of the artist.

- But the issue is that you need to put a value of your startup to raise money, and investors need to put value on their investments to generate liquidity.

- If you have sold a house you know that you take certain factors into account: location, sales of comparable houses in your area, upgrades etc., but in the end ***it is worth what someone will pay for it.***
  - Similar for valuation of startups, in particular, early stage pre-money valuations.

- There are perceptions and **general rules of thumb** and some methods that I will share. These include perceptions based on my experiences from a startup point of view, and from experiences with investors from their point of view - and where do they converge?

Some General Rules of Thumb

- **When I formed my first startup in biometrics**, I sought guidance from a co-founder of the Titan Corp., whom I had worked for.

- He told me some **general rules** to determine valuation that were points that investors will consider when deciding to invest or not that included:
  - IP portfolio.
  - Prototype developed.
  - Customers –or letters of support that say they will buy it once product is available.
  - Need for the product – nice to have or must have.
  - Financial projections – market size.
    - How long before it is profitable.
    - Break even point.
  - Exit strategy.
  - Strong Management team.

- **Also do a capitalization table** to determine how much you need now to get to next level, if you will need more money beyond the seed level, and how much do you want to end up with as the founder.

By the way I convinced him that I had these points, we agreed on a $2M valuation, and he became my first investor. I then used them for startups I formed at Stevens and UAA.

No Perfect Methodology

- **There is no perfect methodology,** although some popular methods used by angel investors and VCs are:
  - Dave Berkus method.
  - Score Card method.
  - Risk Factor method.
  - VC method.

The David Berkus Method If Exists:	Add to Company Value up to:
Sound Idea (basic value)	$1/2 million
Prototype (reducing technology risk)	$1/2 million
Quality Management Team (reducing execution risk)	$1/2 million
Strategic relationships (reducing market risk)	$1/2 million
Product Rollout or Sales (reducing production risk)	$1/2 million
	Total: $1.5M

Score Card Method

- **Score Card Method** – uses comparables - need to understand how much similar companies in your industry/geography are worth.

- The **first step**: determine the average pre-money valuation of the pre-revenue companies in your region and business sector of your company. Varies with the economy and the competitive environment for startup ventures within a region.

- The **next step** is to compare your company to your perception of similar deals done in your region, considering the following factors:

Strength of the Management Team	0 – 30%
Size of the Opportunity	0 – 25%
Product/Technology	0 – 15%
Competitive Environment	0 – 10%
Marketing/Sales Channels/Partnerships	0 – 10%
Need for Additional Investment	0 – 5%
Other	0 – 5%

How Much Can you Expect?

❖ **What can you expect in the size of investment?**

- On average **early seed** around $1M to $5M.
- However, if you do not have all the necessary validation elements, but the investor likes what you do have, then investor might provide $50-100K to prove validation – they get 20% with right of first refusal to provide next tranche of funding.

❖ **So how much do you give up?**

- % varies by case, but on average pre money investor captures 15% to 20%.

❖ **Also note that:**

- A good management team is more valued than a good technology.

Alternative Method

- **Suppose that you have a big idea but don't know how big, then consider a SAFE note** - "simple agreement for future equity" – unlike a convertible note it is not debt.

  - **A SAFE is an agreement** between a company and an investor.
  - In exchange for the money, the investor receives the right to purchase stock in a future equity round (when one occurs) subject to certain parameters set in advance in the SAFE.

  - **I did one recently for a startup.**

- **A References to organize your validation thoughts**:
  - **Alta innovation.com – Big Idea Analytics gives a 5 step method** to assess new ideas by answering critical questions upfront for a new technology. Process helps you understand if your technology has what's needed to raise venture capital.

Final Thoughts

- **Your company is worth what someone will pay to invest in it, and it is up to you to convince them it is worth what you are asking.**

- **You can use these or similar tools to convince them.**

Problems Encountered When Valuing Entrepreneurial Firms

Information

- Risk
  - Knowable
  - Able to estimate
  - Measured statistically or with expert knowledge
- Uncertainty
  - Unknowable
  - Cannot be measured statistically or with expert knowledge

Lack of Cash Flow Now or in the Near Future

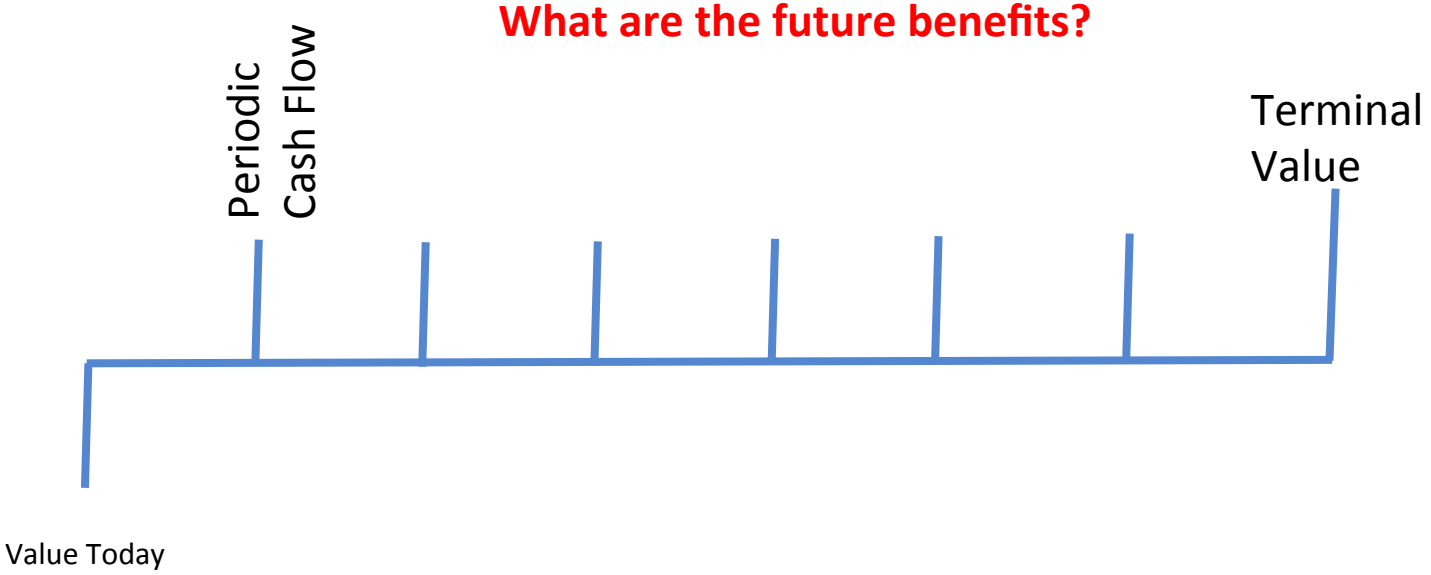
- Expert opinion
- Conjoint analysis
- Problem is industry specific

Basic Valuation Hypothesis

- The value of any asset is equal to the value of all future benefits discounted back to today at the appropriate risk adjusted rate of return.
- The problems are:
  - What are the future benefits
  - What is the appropriate risk adjusted rate of return

Graphically this Problem is Expressed:

What are the future benefits?



I = RRR
i = periodic rrr

N = Number of Years
n = number of periods

What is the appropriate risk adjusted rate of return(RRR)?

Problems with Future Benefit Flows

- What are future benefit flows?
- What form or shape do they take?
- How long do they continue?
- Are they growing or declining
- Do they “work the way the firm works?”

Problems with Appropriate Risk Adjusted Rate of Return: Type I - Where Heuristics and/or Relative Measurements are used

- P/E
- P/B
- P/S
- X EBITDA

- Easy to use (may be applied to next cash flow or to a single value)
- These are general not firm specific estimates; They are based on general conditions subject to change and inaccuracy
- They do not express any unique aspects regarding the target firm; they do not “work the way the firm works”

Problems with Appropriate Risk Adjusted Rate of Return: Type II- Where Computed Risk Premiums like MCC and WACC are used

- Cost of debt
- Cost of preferred stock
- Cost of equity
  - CAPM/Fama-French
  - Gordon Growth
  - Build-up
  - Many others
- These methods attempt to determine a “firm specific” required rate of return (RRR)
- These methods assume a static capital structure and unchanging yield curve

Problems with firm specific opportunity assessment where cash flow is not yet present

- Comparable firm analysis
  - Use a qualitative scoring methodology that is consistent from firm to firm
  - Best procedure is to:
    - Problem/market and competition
    - Product position in market (and intrinsic value)
    - Business model (can the entrepreneur make and sell at a gross profit)
    - Management team
    - Financial needs, projections and investment structure